A Cross-country Comparison of Spinoffs and Mergers

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Abstract

In this study, we construct two new datasets that consist of spinoffs and mergers to investigate how the effects of spinoffs or mergers vary across countries (excluding U.S.). Although the values created by spinoffs represent the relative superiority of the external capital markets over the internal capital markets, we find that spinoffs create less value in countries with more developed capital markets. We also find that post-merger firms benefit from large and efficient external markets. In addition, we provide evidence on the value creation that comes from operating performance improvements.

摘要

在這個研究中，我們分別爲分拆和合拼各收集了一組新的數據，用以研究在不同國家（除了美國）進行分拆或合拼所產生的效應。雖然分拆所產的價值代表外在的資本市場比內部資本市場優越， 但我們的結果發現在發達的資本市場進行分拆會產生較少的價值。結果顯示，在比較成熟的資本市場運作的已合拼的公司得益較多。除此之外，證據也顯示公司價值的提升是基於本身的運作的改善。

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Chapter One: Introduction

Most of the studies on efficiency are confined to the same external capital market – the U.S. However, whether using internal capital market can create value is a statement relative to the efficiency of external capital market. Intuitively, funds would flow towards firms that would generate most value in an efficient external capital market. It is rational to argue that the benefit of using internal capital market, either measured by the value created by spinoffs or the value destroyed by mergers, should be decreasing in the efficiency of external capital market. To our knowledge, there is no research trying to test this hypothesis.

To shed light on diversification debate, we construct a new dataset to conduct a broad cross-country examination. We employ two separate samples of corporate spinoffs and mergers outside the U.S. to test benefit or cost arising from changes in diversification strategies. Our sample consists of 127 spinoffs and 227 mergers announced during 1996-2003 and taken from the Securities Data Corporation (SDC) database.

Based on the data we collected, we test the following hypotheses.

H1: Value created by spinoff firm is increasing in the efficient external capital market,

H2: Value created by merged firm is decreasing in the efficient external capital market,

and

H3: Value created by a firm is positively related to its performance improvement.

Our primary objective is to use spinoffs and mergers data to make a cross-country comparison of the internal capital markets after controlling the variation in external capital market. Since spinoffs break away from internal capital market and access to external capital market, it allows us to examine the impact of external capital market to the firm value. Mergers are simply the reverse of spinoffs and firms receive funding in internal capital markets. Given different level of information asymmetry and financial infrastructure in these economies, spinoff or merger could impact firm value in a differential way. Because the values created by spinoffs represent the relative superiority of the external capital markets over the internal capital markets, it is expected to find that spinoffs create more values and mergers incur greater loss in countries with more efficient capital markets. As stock market values and accounting information are available for both parent firms, subsidiary firms, and post-merger firms, this allow us to measure the effect of spinoffs and examine the potential sources of value gains or losses. Surprisingly, we find that in the efficient external market, spinoffs create less value as well as mergers create more value and these results are significant.

We also seek to provide evidence on whether the value increase or decrease we document for spinoffs or mergers are coming from performance improvements. We

capture performance of firms by examining the change in return on assets, it is because accounting information is available, and the measure is no need to make adjustments. Our results show that operating improvements are significantly related to value creations in both spinoffs and mergers cases.

The rest of the paper is set up as follows. Next section briefly presents some of the arguments discussed in the literature about the effect of diversification strategies and discusses our hypotheses. After describing the sample and the data in Section 3, we describe the methodology used to compute abnormal returns and performance and present the results in Section 4. Additional analysis on spinoffs and mergers are analyzed in Section 5. Section 6 concludes.

Chapter Two: Related Literature and hypotheses

Recent years have witnessed heavy restructuring programs that include merges and acquisitions and spinoffs. Does corporate restructuring enhance firm value and performance? This issue has been very controversial for long. Theoretical arguments documented that diversification could have value-enhancing effects as well as value-reducing effects. Myers and Majluf's (1984) assertion is that resources are allocated efficiently as diversification creates a larger internal capital market. The potential benefits of operating a large firm are able to reduce financing costs and information gaps relative to single-division firm since management from multidivisional firm is better informed about investment opportunities than outsiders (Stein, 1997). If an internal capital market is efficient, an increase in the investment opportunities should increase the amount of resources transfer to more productive segments, hence diversification increases firm value in internal capital market financing. Williamson's (1986)[1] Information Cost Theory implies that internal capital market financing has positive effect on the firm in the other way, which is reducing under-investment costs. As asymmetric information between investors and the manager exists, under-pricing of new securities is resulted and therefore firm would choose to discard projects with net present value. So firms are likely to fund

[1] See Lundstrum (2003).

their investment with internally generated cash rather than external financing to avoid selling under-pricing securities. Stulz (1990) makes a similar argument, he contends that a larger internal capital market is able to reduce under-investment problem.

When diversity in resources and opportunities increases, however, the potential costs of diversification rise. Jensen's (1986) Free Cash Flow Theory makes an argument regarding the management. Managers are likely to undertake value-decreasing investments when there is unused borrowing power and free cash flows. "An internal capital market increases the availability of cash, therefore exacerbating agency costs" (Lundstrum, 2003). In addition, Burch and Nanda (2003) suggest diversity in investment opportunities is a source of value loss for diversified firms. Diversity cost hypothesis states that diversity investment opportunities across divisions increase divisional transfer, exacerbate intra-firm rent seeking, and worsen the diversification discount. Rajan et al. (2000) build a model and show that when diversity in resources and opportunities increases, resources can flow toward the most inefficient division and lead to inefficient investment. They argue that bargaining between divisional managers and corporate headquarters induce misallocation of resources across divisions; least productive divisions receive transfer from the most productive divisions. Scharfstein and Stein (2000) develop a two-tiered agency model and show that managers from weaker divisions can

subvert the workings of an internal capital market by extracting greater overall compensation from the CEO rather than bargaining for preferential capital budgeting allocations. The rent-seeking behaviours of managements in a larger internal capital market enlarge the agency costs. Some recent papers ascribe these diversification discounts to agency problems. Furthermore, systematic differences between divisions of a diversified firm and single-segment firms aggravate the situation. According to Burch and Nanda (2003), diversity limit the ability of strong divisions to hire or retain top talent when weak divisions are perceived to harm overall firm performance or employee morale.

Numerous empirical studies show that diversified firms trade at discount. Berger and Ofek (1995) compare actual firm value to the firm value computed by sum of stand-alone values for individual business segments, they find that diversified firms valued at a 13% to 15% discount and the value loss is due to over-investment as well as cross-subsidization. In sharp contrast, Desai and Jain (1999) document significant value creation in a three-year period after spinoff and they find that value enhance comes from operating performance improvement.

Corporate acquirers systematically dismantling diversified firms during the 1980s is a clue for deriving that the divisions would be more efficiently run in an external capital market financing environment. In these cases, firms prefer to fund their investments in an

external capital market rather than internal capital financing, which corporate headquarters owns the divisions and allocate capital.

Based on the above discussion, we state our hypotheses

H1: Spinoff firm's value is increasing in the efficient external capital market, and

H2: Merged firm's value is decreasing in the efficient external capital market

against the alternative hypothesis that firm value is unrelated to internal or external capital market financing.

First, we use spinoff observations to test *H1*. A corporate spinoff is defined as splitting a company into two separately traded entities. It involves a pro rata distribution of the parent firm's ownership in the subsidiary to the parent's shareholders. Hereafter, We refer to the pre-spinoff and continuing entity as the parent, and the spun-off unit as the subsidiary, even though there is no parent or subsidiary relation following the spinoff. Free Cash Flow Theory implies that firm realizes a value decreasing effect from internal capital market funding. Conversely, spinoff breaks away from internal capital market and accesses to external capital market, thus spinoff should realize a value-increasing effect.

To test the second hypothesis, we use merger observations. A merger is the opposite of a spinoff and two firms become one in this case. A larger internal capital market is created shortly after completing merge as bidders acquire target firms and target firms

cease to exist. If Information Cost Theory is correct, mergers should realize value increasing from access to internal capital market.

In addition, we purpose the third hypothesis

H3: Firm's value is positively related to its performance improvement.

This hypothesis is logical as any improvement in operating performance benefits the firm and thus enhances firm values and performance change may be unrelated to whether the firm is financed by internal or external capital market.

Chapter Three: Sample selection and methodology

A. Sample selection

In order to test whether corporate diversification strategies create or destroy value, a sample of public firms completed spinoffs was developed. As extensive research has worked on the U.S. cases, this study is confined to cases except the U.S.

We first used the M&A module of the Securities Data Corporation (SDC) database to obtain a sample of public listed spinoff firms in all sectors except financial sector (i.e., SICs 6000–6999) that were spun-off during the time period 1996–2003. Firms with financial services segments are removed from consideration, as the valuation methods we use are not applicable for those firms. Clearly, some firms in the financial services industry do not have accounting information, which is important for us but is not meaningful for such companies. SDC data include announcement, effective dates and a brief description on each event. We exclude cases in which the announcement date or the name of newly formed company could not be found in Lexis-Nexis database. To be includes in the sample, accounting data for both parent and subsidiary firms must be available in Thomson Financial or Worldscope and operate at the same geographic region.

Imposing these criteria reduced the sample engaged in spinoffs. Our final sample consists of 132 subsidiaries spun-off in 127 different spinoffs by 117 companies from 21

countries, including Australia, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, India, Italy, Mexico, Netherlands, New Zealand, Norway, Singapore, South Africa, South Korea, Sweden, Switzerland, Thailand and United Kingdom. 1 parent spun-off three subsidiaries in the same spinoff, and 3 parent spun-off two subsidiaries at a time. 9 parents have two spinoffs and 1 parent has three spinoffs separated by multiple years. There are 34 spinoffs where parent and subsidiary operate at the same two-digit SIC code while 93 spinoffs arise where parent and subsidiary operate at different two-digit SIC code. We classified a spinoff as focus-increasing spinoff if the two-digit SIC code of subsidiary is different from the two-digit SIC code of the parent. The remaining spinoffs are classified as the non-focus-increasing spinoff.

Table 1 reports the frequency of spinoff sample firms by completion year. The spinoffs appear heavily in recent years. Table 2 provides a description of the data. The pre-spinoff data are based on fiscal year end information prior to the spinoff announcement, and the post-spinoff data are based on the first full fiscal year end information. The mean book value of total assets of the pre-spinoff firm is US$8183 million and spinoff size numbers show that spinoffs unload a mean of 29.7% of the total assets value of the pre-spinoff entity.

TABLE 1 & TABLE 2 HERE

Another sample of merger is developed by the similar approach. We used the M&A module of the SDC database to obtain a sample of public listed merger firms in all sectors except financial sector (i.e., SICs 6000–6999) that were merged during the time period 1996–2003. SDC data include announcement, effective dates and a brief description on each event. To be includes in the sample, accounting data for both acquirer and target must be available in Worldscope and operate at the same geographic region. The term acquirer means the firm that acquires another firm and continuing entity. The term target means the firm that merged with acquirer and no longer exists.

Our final sample consists of 236 targets merged with 210 acquirers in 227 different divestitures from 11 countries, including Australia, Canada, Denmark, France, India, Japan, Netherlands, New Zealand, South Korea, Sweden and United Kingdom. 6 acquirers merged with 3 targets in the same divestiture, and 3 acquirers merged with 2 targets at a time. There are 126 mergers where acquirer and target firms operate at the same two-digit SIC code while 101 spinoffs arise where acquirer and target firms operate at different two-digit SIC code. We classified a merger as cross industry merger if the

two-digit SIC code of target is different from the two-digit SIC code of the acquirer. The remaining mergers are classified as the own industry merger.

Table 3 reports the frequency of merger sample firms by completion year.

TABLE 3 HERE

B. Methodology

1. Buy-and-hold return

Buy-and-hold return for each stock *i* is computed as $R_{i,t} = \left(\frac{P_{i,c} - P_{i,s}}{P_{i,s}} \right)$, where $P_{i,c}$ is the closing day price of stock *i* of the holding period and $P_{i,s}$ is the price of stock *i* on the starting date. We compute excess returns on holding one-year, two-year, three-year and announcement period. Beginning with the completion date, new company is established in the spinoff case while the target company ceases to exist in the merge case, thus the market model is not appropriate in computing the excess returns over the post-spinoff or post-merger period. We therefore calculate the excess returns over this period by subtracting market index returns, ie.

$AR_{i,t} = R_{i,t} - MKT_{i,t}$,

where $MKT_{i,t}$ is the local market return. In case $AR_{i,t}$ is positive, then excess returns are said to be generated. The *t*-statistic of the average holding period abnormal return for the entire sample (AR_T) is computed as

$$t = AR_T / SE_T$$

where SE_T is the cross-sectional standard error of AR_T.

2. Operating performance changes

In addition to the buy-and-hold return, we follow Daley et al. (1997) to examine if there is any operating performance improvement of the sample firms. We employed the ratio of return on assets (ROA) around the time of spinoff, from year –1 to year +2, as the measurement for performance. The reason for us to select ROA as performance measure is that we would like to document operating performance changes that are separate from the effects of taxes. Since taxation varies across countries, so tax expense are excluded to isolate the performance effects in this examination.

ROA is defined as the ratio of operating income to total assets; year 0 is the year of completing spinoff. For the post-spinoff period, ROA is calculated by combining data from the separate entities into a single portfolio, that is, sum of operating earning of parent and subsidiary to the sum of assets of parent and subsidiary:

$$ROA_{post} = \frac{OperatingIncome_{parent} + OperatingIncome_{subsidiary}}{TotalAssets_{parent} + TotalAssets_{subsidiary}}.$$

By comparing the ROA measures for the pre-spinoff firm to that for the combined parent and subsidiary in the post-spinoff period, we can see if there is significant improvement in ROA for these spinoff firms.

An appropriate benchmark for measuring abnormal performance is crucial. Here we select the median return on assets for all firms except the spinoff firm *i*, which has the same two-digit SIC code, as the benchmark ($IROA_{i,t}$). The industry adjusted ROA (*AROA*) is computed by subtracting the industry benchmark *IROA* from the *ROA* of the spinoff firm, ie.

$$AROA_{i,t} = ROA_{i,t} - IROA_{i,t}.$$

We then use $\Delta AROA$ as the change of industry adjusted ROA for each spinoff firm:

$$\Delta AROA_i = AROA_{i,post} - AROA_{i,pre}.$$

Then we report the mean/median *ROA, AROA,* ΔROA *and* $\Delta AROA$ *across the sample.*

Chapter Four: Valuation Results

A. Empirical Results

Free Cash Flow Theory and Diversity Cost Hypothesis suggest that diversification is value decreasing in the internal capital market operation. So, we first test if spinoffs would realize a value-increasing effect as spinoff break away from internal capital market and access to external capital market, and then we test the prediction arises from the above theory that mergers would realize a value-decreasing effect as merges create larger internal capital market so that funds are inefficiently allocated. We then provide evidence on whether the value change arises from performance change. At last, we present results from cross-sectional regressions to provide evidence of the effects operating performance and the efficiency of external capital market on the stock market performance.

1. Long-run stock market performance

i. Stock market performance of the firms following spinoff

In this section, we investigate whether the long run stock market return of these spinoff firms are also lower than previous studies. In calculating the buy-and-hold returns, if a stock in the sample stops trading for any reason for a particular closing date, then we capture buy-and-hold returns by using the nearest trading date's available stock price.

Table 4 presents summary statistics for the holding period returns for the pro-forma combined firms following the completion of the spinoffs. Stock price for pro-forma combined firm at time *t* is calculated as follow:

$P_t = P_{parent,\ t} \times$ No. of shares $outstanding_{parent} + P_{subsidiary,\ t} \times$ No. of shares $outstanding_{subsidiary}$.

The abnormal returns for the full sample for holding periods of one-year (month +1 to month +12), two-year (month +1 to month +24) and three-year (month +1 to month +36) are 3.01% (*t*-statistic of 1.27), 1.93% (*t*-statistic of 0.47) and 9.81% (*t*-statistic of 1.66). Although these abnormal returns are statistically lower than previous study[2], it is reasonably large in a three-year period and weakly significant.

TABLE 4 HERE

We further split the measure of pro-forma combined firms' stock market performance into two components: the parent firms and the subsidiary firms.

Table 5 presents summary statistics on the stock market performance of parents following spinoffs. It shows that the abnormal returns for the entire parents over the

[2] Desai and Jain (1999) report the average abnormal return in one-, two- and three-years are 7.69%, 12.7% and 19.82 (significant at the 1% level).

period of one-, two- and three-years are 18.47% (*t*-statistic of 9.26), 6.44% (*t*-statistic of 1.07) and 22.12% (*t*-statistic of 2.24). These significant results indicate that parents exhibit a strong positive performance following the spinoffs in the one- and the three-year holding period.

TABLE 5 HERE

Table 6 presents summary statistics on the stock market performance of subsidiaries following spinoff. It shows that the abnormal returns for the entire sample over the period of one-, two- and three-years are 0.43%, 3.81% and 11.75% (*t*-statistic of 1.73) respectively.

The results suggest that the stock market performance of the parents are stronger than the subsidiaries as there are less investment opportunities in the parents firms compared to pre-spinoff periods and thus reduce the inter-divisions transfer and thus generate value. There is little benefit for the subsidiaries in the external capital market financing.

TABLE 6 HERE

ii. Stock market performance of mergers

Table 7 presents summary statistics on the stock market performance of post-merger combined firms. It shows that the abnormal returns for the entire subsidiaries over the period of one-, two- and three-years are 5.20%, 7.18% and 23.24% (*t*-statistic of 3.99) respectively. By construct the above analysis of the valuation on post-merger firms, we show that the mean excess value is positive and the number for holding three-year period is significantly different from zero, that means the firms are perform well even they financed by internal capital markets.

TABLE 7 HERE

2. Accounting performance

i. Accounting performance around spinoff

In this section, we examine the changes in operating performance following spinoffs and to gain insight on the relationship between firm value and its performance. Similar to the analysis of the stock market performance, we use a benchmark for every comparison. Here, we use one matching firm with the same two-digit SIC code as the sample firm for the analysis.

Table 8 presents summary statistics on the operating performance and the changes of operating performance of combined firms around spinoffs. Panel A shows that the mean *AROA* for the entire sample on the pre-spinoff year (hereafter year –1), spinoff year (hereafter year 0), one- (here after year 1), and two-year (here after year 2) following spinoff are 0.79%, 2.81%, 0.60% and 4.20% respectively. The median *AROA* on the above-mentioned years is 0%, 1.88% (significant at the 5% level), 1.60% (significant at the 5% level) and 0.70% respectively. On average, spinoff firms perform quite well on year 0 and year 1 compared with its industry peers.

Panel B shows that the median $\Delta AROA$ for the entire sample are 1.23%, 1.22%, -0.02% and -0.94% from year –1 to +1, form year –1 to 0, from year 0 to +1 and from year +1 to +2 respectively. The first two numbers are significant at 10% and 5% level, which means the change of operating performance is mainly driven by the outstanding performance in the spinoff year.

TABLE 8 HERE

ii. Accounting performance around merger

Table 9 presents summary statistics on the operating performance of combined

firms around merge. Panel A shows that the mean *AROA* for the entire sample on the year -1, year +1 and year +2 are 2.07% (significant at the 1% level), 1.88% (significant at the 5% level) and 1.21% respectively. The median *AROA* on the above-mentioned years is 1.01% (significant at the 1% level), 0.79% (significant at the 1% level) and 1.15% (significant at the 1% level) respectively. The results suggest that the combined firm operating performance is consistently strong relative to their industry peers.

Panel B presents summary statistics on the change of operating performance of combined firms around merge. It shows that the $\Delta AROA$ for the entire sample are -0.05%, -0.55%, 0.46% and 0.18% from year –1 to year +1, form year –1 to 0, from year 0 to +1 and from year +1 to +2 respectively.

Though no significant performance enhance are found in this sample, the evidence of post-merger firms consistently outperform their industry peers suggests that managers become more efficient in resources allocation as merger creates a larger internal capital market.

TABLE 9 HERE

3. Regression analysis

Our sample involves several countries; some are in emerging markets like Thailand and India, the others may come from mature or well-developed markets, for example Hong Kong and Australia. In higher income countries, stock markets tend to be larger, more active and more efficient. Because the level of information asymmetry, capital market imperfection, contract enforcement, law tradition and other financial structures are different across countries, it allows us to facilitate international comparison on the relationship between external market efficiency and firm value.

In this section, we present results from a regressions to provide evidence of the effects of market size, activities, efficiency and operating performance on the stock market performance of spinoff. Following Demirguc-Kunt and Levin, "to measure market size, we use *Market capitalization as a share of GDP*, which equals the ratio of the value of domestic equities (that are traded on domestic exchanges) to GDP. To measure market activity, we use *Total value traded as a share of GDP*, which equals the value of the trades of domestic equities on domestic exchanges divided by GDP. *Total value traded as a share of GDP* measures the value of stock transaction relative to the size of the economy. *Total value traded as a share of GDP* is frequently used gauge market liquidity because it measures trading relative to economic activity. Finally, to measure the efficiency of the market, we use the *Turnover ratio*, which equals the value

of the trades of domestic equities on domestic exchanges as a share of the value of equities… the *Turnover ratio* measures the value of stock transactions relative to the size of the market, and it is frequently used as a measure of market liquidity" (Demirguc-Kunt and Levin[3], 2001).

i. Regression analysis for spinoffs (*H1* and *H3*)

In regression 1 of Table 10, we report on several specifications of the following cross-sectional regression model for spinoffs:

$$R_i = a + b\,(\Delta \textit{Operating Performance})_i + c\,(\textit{Market Size}^4)_i + d\,(\textit{Market Activity}^4)_i + e\,(\textit{Market Efficiency}^4)_i$$

The coefficient on change in operating performance is positive and significant. It consistent to our hypothesis 3 that market's positive valuation to the firm incorporates improved operating performance following spinoff. Coefficients of market size and the level of market activities are insignificant. Turnover ratio is a proxy for measuring market efficiency, and it is expected in a higher-income country, stock market become more

[3] See Bank-based and market-based financial systems: cross-country comparisons.
[4] Data source: Dermirg -Kunt, A. and R. Levine, 2001. Bank-based and market-based financial system: Cross-country comparisons. Dermirg -Kunt, A. and R. Levine (eds.), Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development. Cambridge: MIT Press, pp. 81-140

active and efficient and financial system is more developed. But the interesting finding is coefficient of market efficiency is negative and significant. In contrast to hypothesis 1, the results show that spinoff create more value in an inefficient external capital market rather than in an efficient external capital market.

TABLE 10 HERE

ii. Regression analysis for mergers (*H2* and *H3*)

As diversification increases the diversity of assets under management and thereby reduces the efficiency of the manager and increases the over-investment, it is expected mergers perform poorly in the internal capital market. If the external capital market were more efficient, it would record higher value losses.

Table 11 presents the regressions results of the following cross-sectional regression is estimated:

$$R_i = a + b\,(\Delta\,Operating\ Performance)_i + c\,(Market\ Size)_i + d\,(Market\ Activity)_i + e\,(Market\ Efficiency)_i$$

In regression 1, we analyze the effects on one year holding period return. The coefficient of change in operating performance is positive but insignificant. The

coefficient of market size and activities are 1.652 and –3.062, both are significant at 5% while the coefficient for market efficiency is insignificant. In regression 3, two-year stock market holding period return is positively related to the operating performance improvement and the market size while it is negatively related to the market activities. The coefficient of market size, activities and efficiency are 1.60 (significant at the 5% level), -3.136 (significant at the 5% level) and 1.292 respectively.

The results show that the stock market performance is positively related to operating improvement and strongly related to the external market factors in a longer-term. The external capital market produce mixed effects. Post-merger firms perform quite well in the large but with low trading activities market, such as South Africa[5] in which the stock market is large and illiquid. Mergers incur losses in other countries with active but small stock markets, such as Korea and Germany[6]. The results support H3 but do not support that internal capital market is overwhelming inferior for all countries.

TABLE 11 HERE

B. Robustness

[5] According to Demirguc-Kunt and Levine's (2001) classification.
[6] According to Demirguc-Kunt and Levine's (2001) classification.

1. Regression analysis for spinoffs (*H1* and *H3*)

In model 2 of Table 10, we test report the following cross-sectional regression:

$$R_i = a + b\,(\Delta \textit{Operating Performance})_i + c\,(\textit{Market Size})_i + d\,(\textit{Market Activity})_i + e\,(\textit{Market Efficiency})_i + f\,(\textit{Log of the Parent's Assets})_i + g\,(\textit{Spinoff Size})_i + h\,(\textit{Focus Dummy})_i + j\,(\textit{development dummy})_i$$

Because size and abnormal return may be correlated, we control for possible size effect by including the log of the parent's assets. This variable's coefficient is positive but insignificant in this model. Also, we control for spinoff size, which is a measure of the relative size of spun-off entity to the parent firm. The coefficient is also positive and insignificant. We include focus dummy variable, because there are several reasons to expect a differential performance across the focus increasing and the non-focus-increasing spinoffs. Focus dummy equals to 1 if it is a focus-increasing spinoff, otherwise 0. However, the coefficient on focus dummy shows that focus increase has no impact on the firm value. We also include development dummy in the regressions to examine the different effect of corporate spinoff on development countries and emerging markets. Development dummy equals to 1 if it is a developed country, otherwise 0. The results confirm that stock market returns are low in developed countries but high in emerging markets. It maybe due to that growth potential is high in emerging markets and the

profitability is good in the regions, thus the stock prices are buoyed up and abnormal returns remains sound.

After controlling the above variables, improvement in operating performance is weakly related to the stock performance. Coefficient of market size and activities are remaining the same, still significant at the 5% level. The coefficient for market efficiency is –0.866, significant at the 5% level. Thus *H1* is rejected. The implication is that external capital markets increase the benefits of corporate diversification.

2. Regression analysis for mergers (*H2* and *H3*)

We assess the robustness of our results by using the following regression:

$$R_i = a + b(\Delta \textit{Operating Performance})_i + c(\textit{Market Size})_i + d(\textit{Market Activity})_i + e(\textit{Market Efficiency})_i + f(\textit{Log of the Target's Assets})_i + g(\textit{Diversification Dummy})_i + h(\textit{development dummy})_i$$

In regression 2 of Table 11, after controlling the target firm's asset size, whether it is an own industry merger and a developed country, only the coefficients of market size and activities are significant. In regression 4, two-year stock market holding period return is positively related to the operating performance improvement and the market size while it is negatively related to the market activities and the maturity of financial market. The

coefficient of market size, activities, efficiency and development dummy are 2.068 (significant at the 5% level), -4.074 (significant at the 5% level), 1.912 (significant at the 10% level) and –2.07 (significant at the 5% level) respectively.

The results show that post-merger firms perform well in the large and efficient but with low trading activities emerging market. In all, our result support *H3* but reject *H2*.

Chapter Five: Announcement period return and focus analysis of spinoffs and mergers

A. Spinoffs

Previous literature on Corporate Focus Hypothesis predicts that focus-increasing spinoff creates more value than non-focus-increasing spinoff. Some studies even dig out the truth about the effect of spinoff. Daley et al.'s (1997) results consistent with the hypothesis that spinoffs create value by removing unrelated businesses and allowing managers to focus attention on the core operation they are best suited to manage. Desai and Jain (1999) point out that change in operating performance is significantly positively associated with the change in focus. The disposition of non-core division that operates with a different SIC code to the parent is defined as increasing corporate focus.

We are interested to test that if (1) spinoffs generate returns on the announcement period; (2) focus-increasing spinoffs generate higher value creation than non- focus-increasing spinoffs in the long run; (3) operating performance change of focus-increasing firms are higher than non-focus-increasing firms, and (4) change in focus and operating performance affect the announcement period stock market performance. The results showed on the next few sections.

1. Announcement period abnormal returns for spinoffs

Table 12 reports the buy-and-hold returns for intervals of 5-day, 11-day around announcement date for pre-spinoff entities. Over an eleven-day period, starting five days before and ending five days after the announcement day, pre-spinoff entities gain abnormal return of 1.59%. It represents markets react positively to the announcement of spinoff, in which spun-off companies are financed in the external capital markets, though evidences are not so strong.

The return varies between focus-increasing firms and non-focus-increasing firms. The mean abnormal return for focus-increasing sample is 1.42% only and it is positive in forty-two percent of the cases. Non-focus-increasing sample earns average 3.71% return. Corporate Focus Hypothesis predicts that the performance increase should be found in the parents alone as the removal of non-core businesses allows parent managers to focus on the core operations. However, our results show that investors have a stronger positively reaction toward non-focus-increasing sample, maybe it is due to non-focus-increase firms able to enhance market share and thus enhance profits.

Over the five-day window, it seems the announcement has no impact on the stock prices because abnormal return for the entire sample is just 0.05%. All these values are somewhat lower than those reported in earlier studies.

TABLE 12 HERE

2. Long-run stock market performance following spinoffs

i. Long-run stock market performance of the pro-forma combined firms

Table 13 presents summary statistics on the stock market performance for the focus increasing and non-focus-increasing pro-forma combined firms following spinoff. Abnormal return of focus increasing sub-sample (Panel A) are 7.49%, 1.51% and 22.08% over holding periods of one-, two- and three-years. The corresponding *t*-statistic of abnormal returns are 1.14, 0.62 and 1.98. The first two numbers are insignificant while the later one is significant at the 5% level. Note that the last column of Panel A shows the percentage of positive abnormal returns for the full sample over the three-year period are 64.4%, suggesting that the remarkable results are not driven by several large observations. As opposed to the focus-increasing sub-sample, non-focus-increasing sub-sample (Panel B) earns abnormal returns of –8.8%, -6.91% and 3.53% over the one-, two- and three-year holding periods.

In consistent with those previous studies,[7] the greater value improvements are observed from focus-increasing firms while non-focus-increasing firms exhibit some degree of value reduction.

TABLE 13HERE

ii. Long-run stock market performance of the parents following spinoff

Table 14 presents summary statistics on the stock market performance for the focus-increasing and non-focus-increasing parents following spinoff. The exceptionable about these holding period returns is the difference between focus-increasing and non-focus-increasing sub-samples. Not surprisingly, abnormal returns of focus increasing parents (Panel A) are 33.92%, 8.25% and 23.24% over holding periods of one-, two- and three-years. The corresponding *t*-statistic of abnormal returns are 1.19, 1.36 and 2.8. The first two numbers are insignificant while the later one is statistically significant. Note that the last column of Panel A shows the percentage of positive abnormal returns for the sub-sample over the three-year period are 60.7%, suggesting that the remarkable results are not driven by several large observations. As opposed to the focus-increasing parents, non-

[7] See Desai and Jain (1999) and Daley et al. (1997).

focus-increasing parents (Panel B) earn negative abnormal returns of –10.72%, -10.89% and –10.46% over the same holding periods. In consistent with those previous studies, the greater value improvements are observed from focus-increasing parents while non-focus-increasing parents exhibit some degree of value reduction.

TABLE 14 HERE

iii. Long-run stock market performance of the subsidiaries following spinoff

Table 15 presents summary statistics on the stock market performance for the focus-increasing and non-focus-increasing subsidiaries. Panel A reports the results for subsidiaries spun-off from focus-increasing parents. Abnormal return of focus-increasing parents are 2.65%, -0.78% and 3.61% over holding periods of one-, two- and three-years, while non-focus-increasing parents (Panel B) earn abnormal returns of 6.56% (*t*-statistic of 1.07), 17.96% (*t*-statistic of 1.99) and 40.49% (*t*-statistic of 1.73) over the same holding periods.

These results provide additional information that subsidiaries of non-focus-increasing sample outperform the subsidiaries of focus-increasing sample in the two- and

the three-year holding period following completion the spinoffs. Magnitudes are also larger in non-focusing increasing samples in absolute terms.

TABLE 15 HERE

3. Accounting performance around spinoff

Table 16 presents summary statistics on the operating performance for the focus increasing and non-focus-increasing pro-forma combined firms around spinoffs. Upper part of panel A reports the results of *ROA* and *AROA* for combined firms from focus-increasing parents. Mean *AROA* are –0.27%, 2.88% (significant at the 1% level), 2.76% (significant at the 10% level) and 1.03% while non-focus-increasing combined firms (upper part of Panel B) earn mean *AROA* of 1.98%, 1.16%, -3.35% and 13.99% on the year -1, year 0, year +1 and year +2 respectively. For focus-increasing spinoff, median *AROA* at year 0 and year +1 are 1.91% (significant at the 1% level) and 1.82% (significant at the 1% level) while that of non-focus-increasing combined firms are 2.52% (significant at the 10%) and 1.81% respectively. We can see significant outstanding operating performance for focus-increasing sub-sample on year 0 and year +1, and the significant outstanding performance mainly comes from the focus-increasing sub-sample.

Lower part of Panel B reports the results of ΔROA and $\Delta AROA$ for combined firms from focus-increasing parents. Median $\Delta AROA$ are 1.7% (significant at the 1% level), 1.8% (significant at the 1% level), -0.1% and –0.9% while non-focus-increasing parents (lower part of Panel B) earn median $\Delta AROA$ of 0.8%, 0.1%, -0.0% and –0.3% on the above mentioned period, respectively. There is significant performance improvement in the year of completing spinoff for the focus-increasing sub-sample.

These results show that focus-increasing sample outperform the non-focus-increasing sample. The reason is that focus-increasing parent concentrated on its core business, managerial skills are tailor made to the management of core business, and thus releasing the managers from non-core operation should improve corporate performance. That is why stock market performance of focus-increasing parents is better than that of non-focus-increasing parents.

TABLE 16 HERE

4. Cross-sectional regressions

Similar to Dasai and Jain (1999), we examine the effects of change in focus and operating performance to the stock market performance by using the following cross-

sectional regression:

$$AR_i = a + b\ (Focus\ Dummy)_i + c\ (\Delta\ Operating\ Performance)_i.$$

0.008	0.003	0.16
(0.31)	(0.12)	(2.66)

F-statistic = 3.54, Adjusted R^2 = 5.51% and Number of observations = 88.

The left hand side variable AR_i is the eleven-day (day –5 to +5) announcement period abnormal returns for firm i around the spinoff announcement. Focus dummy is an indicator variable set equal to one if the firm has a focus increase and zero otherwise. Change in operating performance is the difference between the post-spinoff and the corresponding pre-spinoff annual matching-firm adjusted return on assets. The t-statistics is shown in the parentheses under the estimated coefficients.

The results show that market's reaction is positively significantly related to improvement in operating performance, but it is unrelated to change in focus.

B. Mergers

There is a substantial literature on diversification activities. Earlier papers[8] working on announcement period stock market response to mergers show that shareholders gains

[8] See Jensen and Ruback (1983).

and the announcement of takeover. Besides, related diversified firms perform better than unrelated diversity. "Rumelt (1974) argues that related diversification affects value more positively than unrelated diversification because skills and resources can be used in related markets…the effects of reputation and economies of scope, which arise when the joint cost of producing two or more outputs is less than the sum of the costs of producing each output by itself" (Berger and Ofek, 1995, pp. 42). It is contrast to other studies that suggest diversification destroy firm value.

In this section, we use mergers to test if (1) mergers generate returns on the announcement period; (2) own-industry mergers generates higher value creation than cross-industry mergers in the long run; (3) operating performance change of own-industry mergers are higher than cross-industry mergers, and (4) change in diversification and operating performance affect the announcement period stock market performance.

1. Announcement period abnormal returns for mergers

Table 17 reports the buy-and-hold returns for intervals of 5-day, 11-day around announcement date for acquirer. Over an eleven-day period, starting five days before and ending five days after the announcement day, acquirers gain abnormal return of 4.71%. It represents markets react positively to the announcement of merger. The returns vary

between cross industry merge and own industry merge, though evidences are not so strong. The mean abnormal return for cross industry merge sub-sample is 10.51% that is greater than own industry merge sub-sample, which earns average 0.05% return only.

TABLE 17 HERE

2. Long-run stock market performance of mergers

Stock market data for target firms are no longer available since target firms merged with acquirers, so cannot split our examination into two parts: target firms and acquirers, to see which kind of firms contribute more value to the combined firms.

Table 18 presents summary statistics on the stock market performance for the cross industry and own industry post-merger firms. Abnormal return of cross industry mergers (Panel A) are 3.24%, 3.52% and 24.64% over holding periods of one-, two- and three-years. The corresponding *t*-statistic of abnormal returns are 0.83, 0.59 and 2.75. The first two numbers are insignificant while the later one is significant at the 1% level. As opposed to the cross industry merger, own industry merger (Panel B) earns abnormal returns of 6.64%, 9.8% and 22.2% over the one-, two- and three-year holding periods.

The corresponding *t*-statistic of abnormal returns are 1.32, 1.47 and 2.87. The first two numbers are insignificant while the later one is significant at the 1% level.

The above results show that two sub-samples exhibit positive abnormal performance following merge. Neither cross industry merge or own industry merge under perform each other.

TABLE 18 HERE

3. Accounting performance around merger

Upper part of panel A of Table 19 reports the results for combined firms from cross industry merge sub-sample. Mean *AROA* are 0.24%, 1.16% and 1.75% (significant at the 10% level) while own industry merged combined firms (Panel B) earn mean *AROA* of 3.33% (significant at the 1% level), 2.38% (significant at the 5% level) and 0.83% on year -1, year +1 and year +2 respectively. For focus-increasing spinoff, median *AROA* at year –1, year +1 and year +2 are 0.36% (significant at the 1% level), 0.37% and 0.03% (significant at the 1% level) while that of non-focus-increasing combined firms are 1.18% (significant at the 1%), 1.16% (significant at the 1% level) and 1.65% (significant at the 1% level) respectively. We would see significant outstanding operating performance for

the entire sample around merge and the significant out performance is evenly distributed across two sub-samples.

Lower part of panel A reports the results for combined firms from cross industry merge sub-sample. Median $\Delta AROA$ are 0.92%, -0.53%, 1.44% and 0.48% while non-focus-increasing parents (Lower part of panel B) earn median $\Delta AROA$ of –0.06%, -0.55%, 0.37% and 0.38% on the above mentioned period, respectively.

The above results show that the outstanding performance accompanied with merge. A similar pattern is observed when the cross industry and own industry merger are analyzed separately. Overall, the results partly explain that the stock market abnormal return following merge.

TABLE 19 HERE

4. Cross-sectional regressions

Similar to spinoff, we examine the effects of changes in diversification and operating performance to the stock market performance by using the following cross-sectional regression:

$$AR_i = a + b\,(Diversification\ Dummy)_i + c\,(\Delta\,Operating\ Performance)_i.$$

0.013	-0.119	1.215
(0.16)	(0.97)	(2.48)

F-statistic = 3.74, Adjusted R^2 = 2.95% and Number of observations =181.

where AR_i is the eleven-day (day –5 to +5) announcement period abnormal returns for firm i around the merger announcement. Diversification dummy is an indicator variable set equal to one if it is an own industry merger and zero otherwise. Change in operating performance is the difference between the post-merger and the corresponding pre-merger annual matching firm adjusted return on assets. The t-statistics is shown in the parentheses under the estimated coefficients.

The results show that market's reaction is positively significantly related to improvement in operating performance, but it is unrelated to whether it is an own industry merger.

Chapter Six: Conclusion

In this paper we used newly collected data on a cross-section of up to 21 countries to illustrate how value differ in the external capital market around the world. We examine the value of spinoff and merger firms respectively. Pro-forma combined firms of spinoff earn 9.81% abnormal return in a three-year period while the return for the parents are significant. Mergers on average earn a significant 23.24% abnormal return compared with the market return over the 1996-2003 period.

Our results do not support hypothesis 1 that greater efficiency in external markets increases the net benefit of corporate spinoff. Instead, it appears that greater information asymmetry increases the benefits of spinoff or not to conduct corporate restructuring would be better. For the firms operating in developed capital markets, the costs of spinoff outweigh the benefits. Richer countries usually have more efficient markets, the rooms for improve operating performance and increase profitability is less than the poorer countries. As there is great capability for the developing countries to have earnings grow substantially, thus the stock price tends to grow more in an inefficient external market.

In addition, corporate diversification benefit from a large and efficient stock market that is contrast to our hypothesis 2. The use of internal capital markets could lead to higher values for post-merger firms. In fact, corporations have introduced incentive

schemes for managements that avoid agency problems. Merges would bring along with scale effects to firms that are positive to the firm operation and value.

On average, operating performance of post-spinoff firms improved relative to industry benchmarks and operating performance of post-merger firms are strong relative to their industry peers. The results are consistent with hypothesis 3 that operating performance improvements contribute to the increase infirm value.

We also examine whether an increase in corporate focus is a good explanation for the long-run stock market performance following spinoffs, but it has no impact on the firm value.

Tables

Table 1

Summary Statistics for the Sample of 127 Spinoffs Over the Period 1996 to 2003

The initial sample of spinoffs was identified from the SDC database. The final sample of 127 spinoffs satisfied the following criteria: (1) The spinoff involves creation of another public listed company; (2) announcement date and effective date can be identified; (3) firms do not operate in financial sector; (4) accounting data for both parents and subsidiaries must be available; (5) parents and subsidiaries operate at the same geographic region.

Year	Number of Spinoffs	Year	Number of Spinoffs
1996	14	2000	19
1997	13	2001	24
1998	10	2002	19
1999	11	2003	18
		Total	127

Table 2

Summary statistics for descriptive variables

Pre-spinoff values are reported at the latest year-end information prior to announcement date. Post-spinoff values are reported one full fiscal year after the effect date.

		Pre-spinoff	Post-spinoff		Changes
Descriptive variables		Parent	Parent	Spinoff	Parent (post – pre)
Assets (US$mil)	Mean	8,183	8,184	4,145	-810
	Median	1,489	1,273	3,349	-18
	Std. dev.	18,970	14,152	19,551	7,534
Spinoff size	Mean	--	--	0.297	--
(spinoff assets / sum of	Median	--	--	0.209	--
spinoff & parent assets)	Std. dev.	--	--	0.257	--

Table 3

Summary Statistics for the Sample of 227 Mergers Over the Period 1996 to 2003

This table reports the distribution by year of completion of mergers. The initial sample of mergers was identified from the SDC database. The final sample of 227 mergers satisfied the following criteria: (1) The merger targets on another public listed company; (2) announcement date and effective date can be identified; (3) firms do not operate in financial sector; (4) accounting data for both acquirers and targets must be available; (5) acquirers and targets operate at the same geographic region.

Year	Number of Mergers	Year	Number of Mergers
1996	5	2000	47
1997	10	2001	49
1998	23	2002	37
1999	40	2003	16
		Total	227

Table 4

Long-run stock market performance of the pro-forma combined firms following spinoff

This table summarizes raw buy-and-hold returns (*R*) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. The returns of the parents and the subsidiaries are combined in proportion of their market value of equity at the end of the month of ex-date. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
All firms						
EX + 1 to *EX* + 12	101	5.23	2.23	3.01	1.27	49.5
EX + 1 to *EX* + 24		2.80	3.42	1.93	0.47	54.2
EX + 1 to *EX* + 36		11.98	3.62	9.81	1.66*	51.4

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 5

Long-run stock market performance of the parents following spinoffs

This table summarizes raw buy-and-hold returns (*R*) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. The term parent means pre-spinoff and continuing entity. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
All parents						
EX + 1 to *EX* + 12	95	20.70	2.23	18.47	9.26***	44.7
EX + 1 to *EX* + 24		9.86	3.42	6.44	1.07	55.8
EX + 1 to *EX* + 36		25.75	3.62	22.12	2.24**	56.3

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 6

Stock market performance of the subsidiaries following spinoffs

This table summarizes raw buy-and-hold returns (*R*) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. The term subsidiary means the newly created entity following. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
All subsidiaries						
EX + 1 to *EX* + 12	103	2.66	2.23	0.43	0.41	46.7
EX + 1 to *EX* + 24		7.23	3.42	3.81	1.22	53.8
EX + 1 to *EX* + 36		15.37	3.62	11.75	1.73*	46.9

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 7

Stock market performance of the post-merged combined firms

This table summarizes raw buy-and-hold returns (*R*) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
Entire sample						
EX + 1 to *EX* + 12	182	3.99	-1.22	5.20	1.56	50.54
EX + 1 to *EX* + 24	173	-0.74	-7.92	7.18	1.57	56.50
EX + 1 to *EX* + 36	150	11.60	-11.64	23.24	3.99***	60.39

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 8

Return-on-asset ratio (ROA) around spinoffs for the combined firm

This table summarizes operating return-to-asset ratio (*ROA*) and operating return-to-asset ratio (ΔROA) for the full spinoffs sample following the spinoff year –1 to year +2. The return-to-asset is defined as the ratio of the year-end operating income to the year-end total assets. In the post-spinoff period, the return-to-asset is just dividing sum of the operating income of the parent and subsidiaries by their combined year-end book value of total assets. The industry mean or median value for all firms in the same two-digit SIC code from the corresponding spinoff firm is defined as benchmark. The significance of the mean is tested against zero by *t*-test and median is tested against zero using the Wilcoxon sign rank test.

Relative year	No. of obs.	Unadjusted		Industry-adjusted	
		Mean (%)	Median (%)	Mean (%)	Median (%)
Panel A:			*ROA*		*AROA*
Year -1	106	6.75***	6.35	0.79	0
Year 0		7.47***	7.70	2.81	1.88**
Year +1		4.40**	6.46	0.60	1.60**
Year +2		8.57***	5.96	4.20	0.70
Panel B:			ΔROA		$\Delta AROA$
From year –1 to +1	106	-1.93	0.26	-0.98	1.23*
From year –1 to 0		0.52	0.74**	1.78	1.22**
From year 0 to +1		-2.35	-0.03	-2.22	-0.02
From year +1 to +2		2.43	-0.46	2.32	-0.94**

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

Table 9

Return-to-asset ratio (Δ ROA) around merges for the combined firm

This table summarizes return-to-asset ratio (*ROA*) and operating return-to-asset ratio (Δ *ROA*) for the full mergers sample following the spinoff year –1 to year +2. The return-to-asset is defined as the ratio of the year-end operating income to the year-end total assets. In the pre-merger period, the return-to-asset is just dividing sum of the operating income of the acquirer and target firms by their combined year-end book value of total assets. The mean and median value for all firms in the same two-digit SIC code from the corresponding merge firm is introduced as the industry benchmark. The significance of the mean is using a *t*-test and median is tested against zero using the Wilcoxon sign rank test.

Relative year	No. of obs.	Unadjusted		Industry-adjusted	
		Mean (%)	Median (%)	Mean (%)	Median (%)
Panel A:			*ROA*		*AROA*
Year -1	190	7.15***	7.19	2.07***	1.01***
Year +1		4.83***	5.52	1.88**	0.79***
Year +2		4.0***	5.41	1.21	1.15***
Panel B:			Δ *ROA*		Δ *AROA*
From year –1 to +1	190	-2.28***	-1.26	-0.16	-0.05
From year –1 to 0		-1.32**	-0.83	-0.23	-0.55
From year 0 to +1		-0.96*	-0.03	0.09	0.46
From year +1 to +2		-0.94	0.36	-0.70	0.18

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

Table 10

OLS Regressions on the long-run stock market performance of Spinoffs

Dependent variable is one-year stock market abnormal return of the pro-forma combined firm. Change in operating performance is the difference between the post-spinoff and the corresponding pre-spinoff annual matching-firm adjusted return on assets. Market capitalization as a share of GDP equals the ratio of the value of domestic equities (that are traded on domestic exchanges) to GDP. Total value traded as a share of GDP equals the value of the trades of domestic equities on domestic exchanges divided by GDP. Turnover ratio equals the value of the trades of domestic equities on domestic exchanges as a share of the value of equities. Log of the parent's assets is a control variable for possible size effects. Spinoff size is the spinoff firm's post-spinoff assets divided by the sum of parent and spinoff assets. Focus dummy equals to 1 if it is a focus-increasing spinoff, otherwise 0. Development dummy equals to 1 if it is a developed country, otherwise 0.The t-statistics are presented in the parentheses under the estimated coefficient.

	(1)	(2)
Constant	0.307	0.494
	(1.45)	(1.11)
$\Delta ROA_{(-1,1)}$	0.423**	0.326*
	(2.39)	(1.75)
Market capitalization as a share of GDP	-0.280	-0.347
	(-0.99)	(-1.17)
Total value traded as a share of GDP	0.615	0.723
	(1.19)	(1.35)
Turnover ratio	-0.707**	-0.791**
	(-2.03)	(-2.01)
Log of Parent Assets		0.051
		(1.15)
Spinoff Size		0.145
		(0.71)
Focus Dummy		0.160
		(1.26)
Development Dummy		-0.616*
		(-1.8)
Adjusted R^2	0.058	0.0672
No. of observations	87	84

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

Table 11

OLS Regressions on the long-run stock market performance of mergers

Dependent variable is one-, two- and three-year stock market abnormal returns of the post-merge combined firm. Change in operating performance is the difference between the post-spinoff and the corresponding pre-spinoff annual matching-firm adjusted return on assets. Market capitalization as a share of GDP equals the ratio of the value of domestic equities (that are traded on domestic exchanges) to GDP. Total value traded as a share of GDP equals the value of the trades of domestic equities on domestic exchanges divided by GDP. Turnover ratio equals the value of the trades of domestic equities on domestic exchanges as a share of the value of equities. Log of the target's assets is a control variable for possible size effects. Diversification dummy equals to 1 if it is an own industry merger, otherwise 0. Development dummy equals to 1 if it is a developed country, otherwise 0. The t-statistics are presented in the parentheses under the estimated coefficient.

	R_i(1 year)		R_i(2 year)	
	(1)	(2)	(3)	(4)
Constant	-0.456	-0.239	-0.700	-0.101
	(-1.08)	(-0.38)	(-1.43)	(-0.15)
$\Delta ROA_{(-1,1)}$	0.370	0.361	0.673**	0.671**
	(1.39)	(1.32)	(2.21)	(2.18)
$\Delta ROA_{(1,2)}$			0.387*	0.369*
			(1.81)	(1.71)
Market capitalization as a share of GDP	1.652**	1.636**	1.600**	2.222**
	(2.45)	(2.15)	(2.00)	(2.53)
Total value traded as a share of GDP	-3.062**	-2.981*	-3.136**	-4.253**
	(-2.38)	(-2.01)	(-2.06)	(-2.49)
Turnover ratio	0.604	0.445	1.292	2.139
	(0.79)	(0.45)	(1.47)	(1.90)
Log of Target's Assets		-0.000		0.000
		(0.13)		(-0.00)
Diversification Dummy		-0.013		-0.001
		(-0.18)		(0.01)
Development Dummy		-0.159		-1.073**
		(-0.34)		(-2.07)
Adjusted R^2	0.0725	0.1064	0.443	0.041
No. of observations	175	152	158	153

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

Table 12

Announcement Period Returns for pre-spinoff entities Over the period 1996-2003.

This table summarizes the announcement period buy-and-hold returns (*R*) for the sample firms, market index return (*MKT*), corresponding announcement date abnormal returns (*AR*) together with t-statistic and percentage of positive abnormal returns (% + ve) for the entire sample and two sub-samples respectively. The announcement date shown in SDC dataset is defined as day 0. The spinoff is classified as a focus increasing spinoff when the two-digit SIC code of subsidiary is different from the two-digit SIC code of the parent. Means are tested against zero by the appropriate *t*-statistic.

Sample	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
Panel A: All firms						
day –5 to 5	109	2.24	0.65	1.59	1.36	49.5
day –2 to 2		0.85	0.80	0.05	0.06	51.4
Panel B: Focus-increasing sub-sample						
day –5 to 5	81	1.61	0.31	1.42	0.84	41.7
day –2 to 2		1.05	0.73	0.35	0.25	54.3
Panel C: Non-focus-increasing sub-sample						
day –5 to 5	28	5.07	1.36	3.71	1.69*	57.1
day –2 to 2		0.24	1.01	-0.77	-0.69	42.8

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

Table 13

Long-run stock market performance of the pro-forma combined firms following spinoff

This table summarizes raw buy-and-hold returns (*R*) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. Focus increasing and non-focus-increasing are reported respectively. The focus-increasing sample consists parents that has the different two-digit SIC code as the spun-off subsidiaries. The remaining parents are classified as the non-focus-increasing sample. The term parent means pre-spinoff and continuing entity. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
Panel A: Focus-increasing sub-sample						
EX + 1 to *EX* + 12	73	7.53	0.04	7.49	1.14	60
EX + 1 to *EX* + 24		4.37	2.86	1.51	0.62	61.1
EX + 1 to *EX* + 36		33.35	11.27	22.08	1.98**	64.4
Panel B: Non-focus-increasing sub-sample						
EX + 1 to *EX* + 12	26	-1.79	7.01	-8.80	1.21	41.7
EX + 1 to *EX* + 24		-2.89	4.02	-6.91	1.26	51.4
EX + 1 to *EX* + 36		6.36	2.83	3.53	0.78	53.8

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 14

Stock market performance of the parents following spinoffs

This table summarizes raw buy-and-hold returns (*R*) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. Focus increasing and non-focus-increasing are reported respectively. The focus-increasing sample consists parents that has the different two-digit SIC code as the spun-off subsidiaries. The remaining parents are classified as the non-focus-increasing sample. The term parent means pre-spinoff and continuing entity. The term subsidiary means the newly created entity following spinoff. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
Panel A: Focus-increasing parents						
EX + 1 to *EX* + 12	72	33.96	0.04	33.92	1.19	48.1
EX + 1 to *EX* + 24		11.11	2.86	8.25	1.36	56.1
EX + 1 to *EX* + 36		26.07	2.83	23.24	2.80***	60.7
Panel B: Non-focus-increasing parents						
EX + 1 to *EX* + 12	23	-3.71	7.01	-10.72	-1.39	50
EX + 1 to *EX* + 24		-6.87	4.02	-10.89	-0.82	52.6
EX + 1 to *EX* + 36		0.81	11.27	-10.46	-0.62	40

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 15

Stock market performance of the subsidiaries following spinoffs

This table summarizes raw buy-and-hold returns (*R*) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. Focus-increasing and non-focus-increasing sub-samples are reported respectively. The focus-increasing sample consists subsidiaries that has the different two-digit SIC code as those parents. The remaining subsidiaries are classified as the non-focus-increasing sample. The term parent means pre-spinoff and continuing entity. The term subsidiary means the newly created entity following spinoff. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
Panel A: Focus-increasing subsidiaries						
EX + 1 to *EX* + 12	77	-2.69	0.04	2.65	-0.09	42.9
EX + 1 to *EX* + 24		2.08	2.86	-0.78	0.44	50
EX + 1 to *EX* + 36		6.44	2.83	3.61	0.70	40.4
Panel B: Non-focus-increasing subsidiaries						
EX + 1 to *EX* + 12	26	13.57	7.01	6.56	1.07	59.1
EX + 1 to *EX* + 24		21.98	4.02	17.96	1.99**	68.8
EX + 1 to *EX* + 36		51.76	11.27	40.49	1.73*	69.23

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 16

Operating earning-on-asset ratio (ROA) around spinoffs for the combined firm

This table summarizes return-to-asset ratio (*ROA*) and changes in return-to-asset ratio (ΔROA) for both focus-increasing sample and non-focus-increasing sample following the spinoff. The focus-increasing sub-sample consists of spinoffs that parent firms operate in different two-digit SIC code as the newly created subsidiaries. The remaining spinoffs are classified as the non-focus-increasing sub-sample. The return-to-asset is defined as the ratio of the year-end operating income to the year-end total assets. In the post-spinoff period, the return-to-asset is just dividing sum of the operating income of the parent and subsidiaries by their combined year-end book value of total assets. The industry mean or median value for all firms in the same two-digit SIC code from the corresponding spinoff firm is defined as benchmark. The significance of the mean is tested against zero by *t*-test and median is tested against zero using the Wilcoxon sign rank test.

Relative year	No. of obs.	Unadjusted		Industry-adjusted	
		Mean (%)	Median (%)	Mean (%)	Median (%)
Panel A: Pre- and post-spinoff return-on-asset for the focus-increasing sub-sample					
			ROA		*AROA*
Year -1	70	6.08***	6.29	-0.27	-0.05
Year 0		6.58***	6.42	2.88***	1.91***
Year +1		6.60***	6.45	2.76*	1.82***
Year +2		4.80***	5.57	1.03	1.01
			ΔROA		$\Delta AROA$
From year –1 to +1	70	-0.8	0.7	1.0	1.7***
From year –1 to 0		0.4	1.1	2.7**	1.8***
From year 0 to +1		-1.2	0.0	1.6	-0.1
From year +1 to +2		-2.5	-0.4*	-2.0	-0.9
Panel B: Pre- and post-spinoff return-on-asset for the non-focus-increasing sub-sample					
			ROA		*AROA*
Year -1	36	7.97***	7.31	1.98	3.15
Year 0		7.22	9.24	1.16	2.52*
Year +1		2.57	8.13	-3.35	1.81
Year +2		19.53*	7.85	13.99	0.86
			ΔROA		$\Delta AROA$
From year –1 to +1	36	-5.3	-0.3	-4.9	0.8
From year –1 to 0		-0.7	0.2	-0.1	0.1
From year 0 to +1		-4.5	-0.7	-4.2	-0.0
From year +1 to +2		14.4	-0.8	12.7	-0.3

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

Table 17

Announcement Period Returns for 236 Mergers Over the period 1996-2003.

This table summarizes the announcement period buy-and-hold returns (R) for the sample firms, market index return (*MKT*), corresponding announcement date abnormal returns (*AR*) together with t-statistic and percentage of positive abnormal returns (% + ve) for the entire sample and two sub-samples respectively. The announcement date shown in SDC dataset is defined as day 0. The cross industry merge sub-sample consists targets that has the different two-digit SIC code as those acquirers. The remaining mergers are classified as the own industry merge sub-sample. The term acquirer means the firm that acquires another firm and continuing entity. The term target means the firm that merged with acquirer and no longer exists. Means are tested against zero by the appropriate *t*-statistic.

Sample	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
Panel A: All firms						
day –5 to 5	236	5.02	0.31	4.71	1.0	47.88
day –2 to 2	236	0.47	0.05	0.42	0.68	50.42
Panel B: Cross industry merger sample						
day –5 to 5	105	11.09	0.59	10.51	1.0	47.6
day –2 to 2	105	0.55	0.02	0.53	0.65	53.33
Panel C: Own industry merger sample						
day –5 to 5	131	0.15	0.09	0.05	0.05	46.67
day –2 to 2	131	0.40	0.07	0.33	0.37	48.09

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

Table 18

Stock market performance of the post-merged combined firms

This table summarizes raw buy-and-hold returns (R) for the sample firms, raw buy-and-hold returns of the market index (*MKT*), corresponding abnormal returns (*AR*) together with t-statistic associated with the abnormal returns and percentage of positive abnormal returns (% + ve) over the periods following the month of ex-date. Cross industry merge and own industry merge sub-samples are reported respectively. The cross industry merge sub-sample consists targets that has the different two-digit SIC code as those acquirers. The remaining mergers are classified as the own industry merge sub-sample. The term acquirer means the firm that acquires another firm and continuing entity. The term target means the firm that merged with acquirer and no longer exists. *EX* is the month of the ex-date.

Time period	No. of obs.	*R* (%)	*MKT* (%)	*AR* (%)	*t*-Stat	% + ve
Panel A: Cross industry merger sample						
EX + 1 to *EX* + 12	77	4.11	0.86	3.24	0.83	48.7
EX + 1 to *EX* + 24		-1.35	-4.87	3.52	0.59	51.4
EX + 1 to *EX* + 36		16.14	-8.5	24.64	2.75***	59.4
Panel B: Own industry merger sample						
EX + 1 to *EX* + 12	105	3.90	-2.74	6.64	1.32	49.5
EX + 1 to *EX* + 24		-0.30	-10.10	9.80	1.47	58.4
EX + 1 to *EX* + 36		8.22	-13.98	22.20	2.87***	59.3

Note: Asterisks indicate significant different from zero at the10%(*), 5%(**) and 1%(***) level.

Table 19

Changes in operating earning-to-asset ratio (Δ ROA) around merger for the combined firm

This table summarizes operating return-to-asset ratio (ROA) and operating return-to-asset ratio (Δ ROA) for both cross industry merge sample and own industry merge sample following merge. The cross industry merge sample consists mergers that acquirer firms operate in different two-digit SIC code as the target firms. The remaining mergers are classified as the own industry merge sample. The return-to-asset is defined as the ratio of the year-end operating income to the year-end total assets. In the pre-merger period, the return-to-asset is just dividing sum of the operating income of the acquirer and target firms by their combined year-end book value of total assets. The mean and median value for all firms in the same two-digit SIC code from the corresponding merge firm is introduced as the industry benchmark. The significance of the mean is using a *t*-test and median is tested against zero using the Wilcoxon sign rank test.

Relative year	No. of obs.	Unadjusted		Industry-adjusted	
		Mean (%)	Median (%)	Mean (%)	Median (%)
Panel A: Pre- and post-merger return-on-asset for the cross industry merge sub-sample					
			ROA		*AROA*
Year -1	83	6.49***	7.19	0.24	0.36***
Year +1		5.29***	6.91	1.16	0.37
Year +2		5.49***	5.99	1.75*	0.03***
			Δ *ROA*		Δ *AROA*
From year –1 to +1		-1.2	-0.84	0.92	0.92
From year –1 to 0		-1.16	-0.53	-0.53	-0.53
From year 0 to +1		-0.04	0.39	1.44	1.44
From year +1 to +2		-0.45	-0.10	0.48	0.48
Panel B: Pre- and post-spinoff return-on-asset for the own industry merge sub-sample					
			ROA		*AROA*
Year -1	107	7.67	7.30	3.33***	1.18***
Year +1		4.49	4.98	2.38**	1.16***
Year +2		2.90	4.66	0.83	1.65***
			Δ *ROA*		Δ *AROA*
From year –1 to +1		-3.12***	-1.78	-0.91	-0.06
From year –1 to 0		-1.45*	-0.85	-0.02	-0.55
From year 0 to +1		-1.67**	-0.47	-0.84	0.37
From year +1 to +2		-1.30	0.47	-1.51	0.38

Note: Asterisks indicate significant different from zero at the 10%(*), 5%(**) and 1%(***) level.

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